

Application No. 10/595,640

July 18, 2008

Reply to the Office Action dated February 5, 2008 and  
the Advisory Action dated June 4, 2008

Page 4 of 6

REMARKS/ARGUMENTS

Claims 1-3 and 5 are pending in this application. By this amendment, Applicant amends Claims 1-3 and 5 and cancels Claim 8.

Claims 1-8 were rejected under 35 U.S.C. § 102(b) as being anticipated by Shimizu (U.S. 5,834,345) or, in the alternative, under 35 U.S.C. § 103(a) as being unpatentable over Shimizu in view of Robertson et al. (EP 1 154 036). Applicant notes that Claims 4, 6, and 7 were canceled in the Amendment filed on November 21, 2007. Accordingly, the Examiner has clearly inadvertently listed Claims 4, 6, and 7 in the prior art rejection, and should have listed only Claims 1-3, 5, and 8. Claim 8 has been canceled. Applicant respectfully traverses the rejections of Claims 1-3 and 5.

Claim 1 has been amended to recite:

**A liquid crystal display device** comprising:  
a transistor including:

    a source electrode and a drain electrode arranged in  
    mutually opposing relation;

    a semiconductor film comprising at least one layer disposed  
    between the source electrode and the drain electrode;

    a gate electrode disposed in adjacent relation to the  
    semiconductor film; and

    a gate insulating film disposed between the gate electrode  
    and each of the source electrode, the drain electrode, and the  
    semiconductor film; wherein

**a concentration of fluorine contained in the gate  
insulating film is in a range of about  $7 \times 10^{18}$  atoms/cm<sup>3</sup> to about  $1 \times 10^{20}$  atoms/cm<sup>3</sup>;**

    the transistor is of an inverted stagger type in which the gate  
    insulating film and the semiconductor film are formed in that order and the  
    semiconductor film is disposed on the gate insulating film;

    the gate insulating film is an amorphous silicon nitride film;  
    and

**the transistor defines a switching element for a pixel electrode  
portion.** (emphasis added)

The Examiner alleged that Shimizu teaches all of the features recited in

Application No. 10/595,640

July 18, 2008

Reply to the Office Action dated February 5, 2008 and  
the Advisory Action dated June 4, 2008

Page 5 of 6

Applicant's Claim 1, including a gate insulating film that does not contain a concentration of fluorine which would read on the feature of "a concentration of fluorine contained in the gate insulating film is  $1 \times 10^{20}$  atoms/cm<sup>3</sup> or less" as recited in Applicant's Claim 1. Alternatively, the Examiner alleged, "Robertson [et al.] teaches cleaning the CVD chamber using fluorine and thereafter completely removing fluorine residue and particulates from the CVD chamber (par. 5-11 and 23)." Thus, the Examiner concluded that it would have been obvious "to clean the CVD apparatus of Shimizu with the method taught by Robertson [et al.] thus removing fluorine from being present in the amorphous silicon nitride."

Although Applicant respectfully disagrees with the Examiner's allegations, in order to expedite prosecution, Applicant has amended Claim 1 to recite the features of "A liquid crystal display device," "a concentration of fluorine contained in the gate insulating film is in a range of about  $7 \times 10^{18}$  atoms/cm<sup>3</sup> to about  $1 \times 10^{20}$  atoms/cm<sup>3</sup>," and "the transistor defines a switching element for a pixel electrode portion." Support for these features is found, for example, in paragraph [0028] and Claim 8 of the originally filed application.

As acknowledged by the Examiner, Shimizu teaches a gate insulating film which does not include any fluorine. Robertson et al. fails to teach or suggest any gate insulating film, and thus clearly fails to teach or suggest a gate insulating film having a concentration of fluorine. Thus, Shimizu and Robertson et al. certainly fail to teach or suggest the feature of "a concentration of fluorine contained in the gate insulating film is in a range of about  $7 \times 10^{18}$  atoms/cm<sup>3</sup> to about  $1 \times 10^{20}$  atoms/cm<sup>3</sup>" as recited in Applicant's Claim 1.

Accordingly, Applicant respectfully submits that Shimizu and Robertson et al., applied alone or in combination, fail to teach or suggest the features recited in Applicant's Claim 1.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of

Application No. 10/595,640

July 18, 2008

Reply to the Office Action dated February 5, 2008 and  
the Advisory Action dated June 4, 2008

Page 6 of 6

the rejection of Claim 1 under 35 U.S.C. § 102(b) as being anticipated by Shimizu or, in the alternative, under 35 U.S.C. § 103(a) as being unpatentable over Shimizu in view of Robertson et al.

In view of the foregoing amendments and remarks, Applicant respectfully submits that Claim 1 is allowable. Claims 2, 3, and 5 depend upon Claim 1, and are therefore allowable for at least the reasons that Claim 1 is allowable.

In view of the foregoing amendments and remarks, Applicant respectfully submits that this application is in condition for allowance. Favorable consideration and prompt allowance are solicited.

To the extent necessary, Applicant petitions the Commissioner for a Three-Month Extension of Time, extending to August 5, 2008, the period for response to the Office Action dated February 5, 2008.

The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

Dated: July 18, 2008

/Christopher A. Bennett, #46,710/  
Attorneys for Applicant

**KEATING & BENNETT, LLP**  
1800 Alexander Bell Drive, Suite 200  
Reston, VA 20191  
Telephone: (571) 313-7440  
Facsimile: (571) 313-7421

Joseph R. Keating  
Registration No. 37,368  
Christopher A. Bennett  
Registration No. 46,710